

WE CLAIM:

1. A concentrate composition comprising phosphate and phosphonate, the phosphate and the phosphonate being present in a ratio by weight of about 0.05:1 to about 5 3:1; the concentrate being adapted and configured for washing of glass or ceramic ware with an applied colored design.

10 2. The concentrate composition of claim 1, further comprising an organic builder.

15 3. The concentrate composition of claim 2, wherein the organic builder comprises a 2 to 12 carbon mono or di carboxylic acid.

20 4. The concentrate composition of claim 3, wherein the 2 to 12 carbon mono or di carboxylic acid comprises a gluconic acid, a citric acid, a lactic acid or a combination thereof.

25 5. The concentrate composition of claim 1, wherein the phosphate and phosphonate are in a weight ratio of about 1.9:1.

30 6. The concentrate composition of claim 1, wherein the phosphate comprises a monomer of phosphoric acid, a polymer of phosphoric acid, a salt of phosphoric acid, or a combination thereof.

7. The concentrate composition of claim 6, wherein the phosphate comprises an ortho phosphate, a meta phosphate, a tripolyphosphate, or a combination thereof.

8. The concentrate composition of claim 6, wherein the phosphate comprises phosphoric acid.

9. The concentrate composition of claim 1, wherein the phosphonate comprises organic phosphonate, amino phosphonate, or a combination thereof.

10. The concentrate composition of claim 9, wherein the organic phosphonate
5 comprises 1-hydroxyethylidene-1,1-diphosphonic acid (HEDP); 2-phosphonobutane-1,2,4-tricarboxylic (PBTC); or a combination thereof.

11. The concentrate composition of claim 1, further comprising an organic
builder, wherein the organic builder comprises a gluconic acid, a citric acid, a lactic acid or a
10 combination thereof; the phosphate comprises phosphoric acid; and the phosphonate
comprises 1-hydroxyethylidene-1,1-diphosphonic acid (HEDP);
amino(tri(methylenephosphonic acid)) (ATMP); 2-phosphonobutane-1,2,4-tricarboxylic
(PBTC); or a combination thereof.

15 12. The concentrate composition of claim 11, comprising about 8 wt-% gluconic
acid, about 5 wt-% citric acid, about 5 wt-% lactic acid, about 10 wt-% phosphoric acid,
about 6 wt-% HEDP, and about 1 wt-% PBTC, the remainder being water or another carrier.

20 13. The concentrate composition of claim 11, comprising about 16 wt-% gluconic
acid, about 10 wt-% citric acid, about 10 wt-% lactic acid, about 20 wt-% phosphoric acid,
about 12 wt-% HEDP, and about 2 wt-% PBTC, the remainder being water or another carrier.

25 14. The concentrate composition of claim 1, wherein the composition is
substantially free of EDTA.

15. The concentrate composition of claim 1, further comprising a source of
alkalinity, a surfactant, or a combination thereof.

30 16. The concentrate composition of claim 15, wherein the source of alkalinity
comprises sodium hydroxide, a carbonate, or a combination thereof.

- TECHNICAL DRAWINGS
17. The concentrate composition of claim 15, wherein the surfactant comprises an amphoteric surfactant, a nonionic surfactant, or a combination thereof.
18. The concentrate composition of claim 17, wherein the amphoteric surfactant
5 comprises a polyoxyethylene coco amine.
19. The concentrate composition of claim 17, wherein the nonionic surfactant
comprises an alcohol ethoxylate or an EO-PO block copolymer.
- 10 20. A concentrate composition comprising phosphate; phosphonate; and source of alkalinity, surfactant, or combination thereof; the phosphate and the phosphonate being present in a ratio by weight of about 0.05:1 to about 3:1; the concentrate being adapted and configured for washing of glass or ceramic ware with an applied colored design.
- 15 21. The concentrate composition of claim 20, wherein the source of alkalinity comprises sodium hydroxide, a carbonate, or a combination thereof.
- 20 22. The concentrate composition of claim 20, wherein the surfactant comprises an amphoteric surfactant, a nonionic surfactant, or a combination thereof.
23. The concentrate composition of claim 22, wherein the amphoteric surfactant comprises a polyoxyethylene coco amine.
24. The concentrate composition of claim 22, wherein the nonionic surfactant
25 comprises an alcohol ethoxylate or an EO-PO block copolymer.
- 25 25. The concentrate composition of claim 20, wherein the phosphate and phosphonate are in a weight ratio of about 1.9:1.
- 30 26. The concentrate composition of claim 20, wherein the phosphate comprises phosphoric acid.

27. The concentrate composition of claim 20, wherein the phosphonate comprises 1-hydroxyethylidene-1,1-diphosphonic acid (HEDP); amino(tri(methylenephosphonic acid)) (ATMP); 2-phosphonobutane-1,2,4-tricarboxylic (PBTC); or a combination thereof.

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28. The concentrate composition of claim 20, further comprising an organic builder, wherein the organic builder comprises a gluconic acid, a citric acid, a lactic acid or a combination thereof; the phosphate comprises phosphoric acid; the phosphonate comprises 1-hydroxyethylidene-1,1-diphosphonic acid (HEDP), amino(tri(methylenephosphonic acid)) (ATMP); 2-phosphonobutane-1,2,4-tricarboxylic (PBTC), or a combination thereof; the surfactant comprises an alcohol ethoxylate, an EO-PO block copolymer, or a combination thereof; and the source of alkalinity comprises sodium hydroxide, a carbonate, or a combination thereof.

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29. The concentrate composition of claim 20, wherein the composition is substantially free of EDTA.

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30. A use composition comprising phosphate; phosphonate; and source of alkalinity, surfactant, or combination thereof; the phosphate and the phosphonate being present in a ratio by weight of about 0.05:1 to about 3:1; the use composition being adapted and configured for washing of glass or ceramic ware with an applied colored design.

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31. The use composition of claim 30, wherein the source of alkalinity comprises sodium hydroxide, a carbonate, or a combination thereof.

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32. The use composition of claim 30, wherein the surfactant comprises an amphoteric surfactant, a nonionic surfactant, or a combination thereof.

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33. The use composition of claim 32, wherein the amphoteric surfactant comprises a polyoxyethylene coco amine.

34. The use composition of claim 32, wherein the nonionic surfactant comprises an alcohol ethoxylate or an EO-PO block copolymer.

35. The use composition of claim 30, wherein the phosphate and phosphonate are
5 in a weight ratio of about 1.9:1.

36. The use composition of claim 30, wherein the phosphate comprises phosphoric acid.

10 37. The use composition of claim 30, wherein the phosphonate comprises 1-hydroxyethylidene-1,l-diphosphonic acid (HEDP); amino(tri(methylenephosphonic acid)) (ATMP); 2-phosphonobutane-1,2,4-tricarboxylic (PBTC); or a combination thereof.

15 38. The use composition of claim 30, further comprising an organic builder, wherein the organic builder comprises a gluconic acid, a citric acid, a lactic acid or a combination thereof; the phosphate comprises phosphoric acid; the phosphonate comprises 1-hydroxyethylidene-1,l-diphosphonic acid (HEDP), amino(tri(methylenephosphonic acid)) (ATMP); 2-phosphonobutane-1,2,4-tricarboxylic (PBTC), or a combination thereof; the surfactant comprises an alcohol ethoxylate, an EO-PO block copolymer, or a combination thereof; and the source of alkalinity comprises sodium hydroxide, a carbonate, or a combination thereof.

20 39. The use composition of claim 30, wherein the composition is substantially free of EDTA.

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40. A method of washing glass or ceramic ware having an applied color design, the method comprising:

providing a cleaning composition comprising a source of alkalinity, a surfactant, or a combination thereof;

providing an additive composition comprising a phosphate and a phosphonate, the phosphate and the phosphonate being present in a ratio by weight of about 0.05:1 to about 3:1;

5 mixing the cleaning and additive compositions; and

contacting the glass or ceramic ware having an applied color design with the mixed compositions.

41. The method of claim 40, further comprising diluting the cleaning composition, diluting the additive composition, diluting the mixed compositions, or a combination thereof.

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42. The method of claim 40, wherein the cleaning composition comprises a concentrate composition or a use composition.

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43. The method of claim 40, wherein the additive composition comprises a concentrate composition or a use composition.

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44. The method of claim 40, wherein the additive composition further comprises an organic builder; and the organic builder comprises a gluconic acid, a citric acid, a lactic acid or a combination thereof; the phosphate comprises phosphoric acid; and the phosphonate comprises 1-hydroxyethylidene-1,1-diphosphonic acid (HEDP); amino(tri(methylenephosphonic acid)) (ATMP); 2-phosphonobutane-1,2,4-tricarboxylic (PBTC); or a combination thereof.

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45. The method of claim 40, wherein the mixed compositions are substantially free of EDTA.

46. The method of claim 40, wherein the source of alkalinity comprises sodium hydroxide, a carbonate, or a combination thereof.

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47. The method of claim 40, wherein the surfactant comprises an amphoteric surfactant, a nonionic surfactant, or a combination thereof.

48. A method of washing glass or ceramic ware having an applied color design, the method comprising:

5 providing a cleaning composition comprising source of alkalinity, surfactant, or combination thereof; phosphate; and phosphonate; the phosphate and the phosphonate being present in a ratio by weight of about 0.05:1 to about 3:1;

contacting the glass or ceramic ware having an applied color design with the cleaning composition.

10 49. The method of claim 48, further comprising diluting the cleaning composition.

50. The method of claim 48, wherein the cleaning composition comprises a concentrate composition or a use composition.

15 51. The method of claim 48, wherein the cleaning composition further comprises an organic builder; and the organic builder comprises a gluconic acid, a citric acid, a lactic acid or a combination thereof; the phosphate comprises phosphoric acid; and the phosphonate comprises 1-hydroxyethylidene-l,l-diphosphonic acid (HEDP); amino(tri(methylenephosphonic acid)) (ATMP); 2-phosphonobutane-1,2,4-tricarboxylic
20 (PBTC); or a combination thereof.

52. The method of claim 48, wherein the cleaning composition is substantially free of EDTA.

25 53. The method of claim 48, wherein the source of alkalinity comprises sodium hydroxide, a carbonate, or a combination thereof.

54. The method of claim 48, wherein the surfactant comprises an amphoteric surfactant, a nonionic surfactant, or a combination thereof.

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55. A concentrate composition comprising amino phosphonate and organic phosphonate, the amino phosphonate and the organic phosphonate being present in a ratio by weight of about 4:1 to about 1:1; the concentrate being adapted and configured for washing of glass or ceramic ware with an applied colored design.

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56. The concentrate composition of claim 55, further comprising source of alkalinity, surfactant, or combination thereof.

57. A use composition comprising amino phosphonate; organic phosphonate; and source of alkalinity, surfactant, or combination thereof; the amino phosphonate and the organic phosphonate being present in a ratio by weight of about 4:1 to about 1:1; the use composition being adapted and configured for washing of glass or ceramic ware with an applied colored design.

15 58. A method of washing glass or ceramic ware having an applied color design, the method comprising:

providing a cleaning composition comprising source of alkalinity, surfactant, or combination thereof; amino phosphonate; organic phosphonate; the amino phosphonate and the organic phosphonate being present in a ratio by weight of about 4:1 to about 1:1;

20 contacting the glass or ceramic ware having an applied color design with the cleaning composition.